SILICON NITRIDE CORROSION RESISTANT MEMBER AND ITS PRODUCTION

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Abstract of **JP11278944**

PROBLEM TO BE SOLVED: To obtain a silicon nitride corrosion resistant member consisting of silicon nitride sintered body excellent in heat resistance and capable of inhibiting the generation of particles, and further to provide a production method thereof. SOLUTION: This silicon nitride corrosion resistant member is obtained by compacting a mixture obtained by adding at least >=0.5 wt.% rare earth oxide to a silicon nitride raw material powder containing >=0.5 wt.% cationic impurity, and mixing the raw material powder with the added rare earth oxide to form a prescribed shape, firing the obtained compact to provide a silicon nitride sintered body 1 having >=98% relative density, heat-treating at least a face to be exposed to chlorine-based corrosive gas or a plasma, of the silicon nitride sintered body 1 in an atmosphere containing chlorine and/or hydrogen at 800-1,900 deg.C to remove a grain boundary phase and to form a boundary phase-removed layer 5 regulated so that the boundary phase 4 containing at least a sintering adjuvant and an impurity over the depth of 10 &mu m from the contacting surface 2 may be removed so as to be 1/3 times as much as that of the boundary phase at the depth of 1 mm from the surface expressed in terms of a surface ratio.